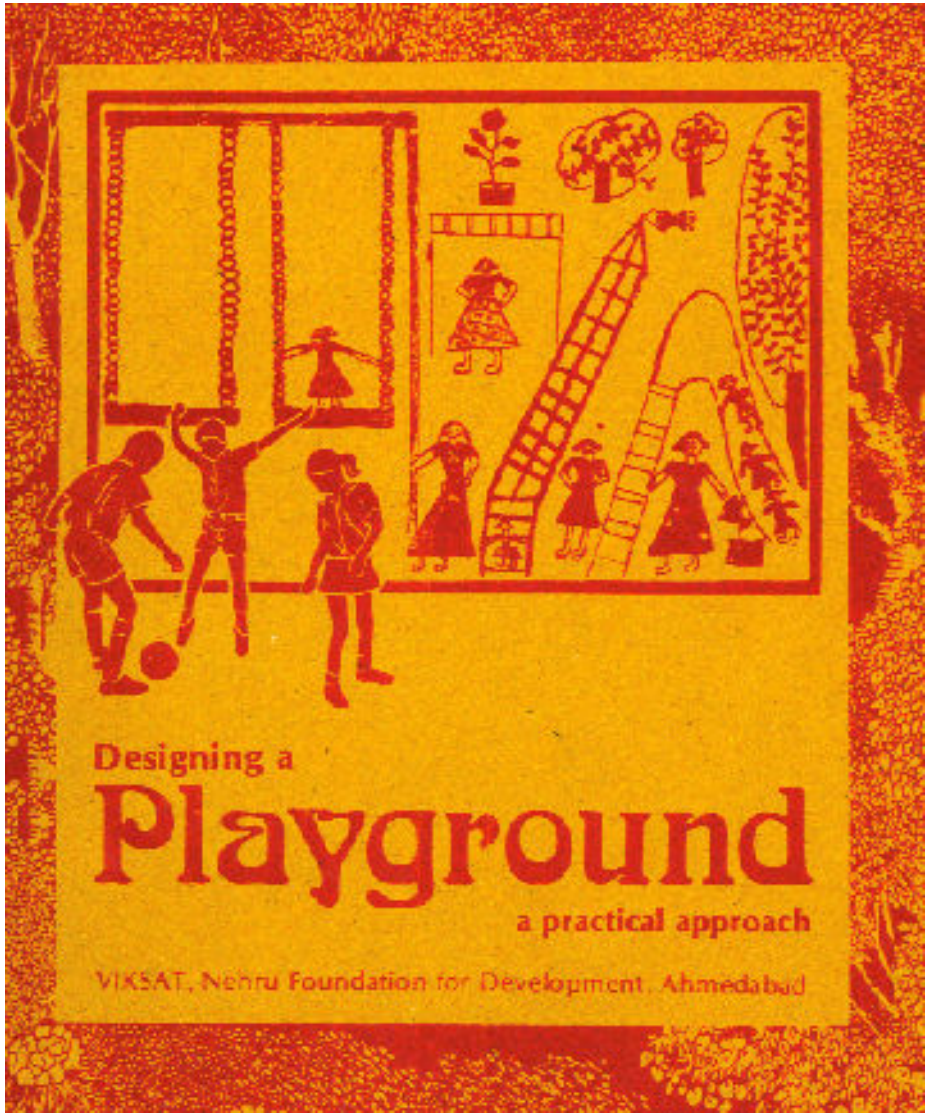

Designing a

Playground

a practical approach

VIKSAT, Nehru Foundation for Development, Ahmedabad

I would like to thank Bharti Ramola for her many useful suggestions, and for working on this monograph. Mr. Ramesh Kothari was most helpful in working out several play equipment designs. Parul of Abhikram provided many insights and designs. Rajshree Sarabhai compiled the section on trees. Jayendra Bhatt worked out the section on material and costs. Jayshree Mehta of VASCSC, and others who participated in our workshop on playgrounds, contributed a great deal to this monograph. For all this help I am truly grateful. I also thank Rethi V. Menon for typing the manuscript.

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"In the silent gloom of the temple children come out to play god watches from above and forgets the priest".

Tagore.

India has a rich and varied play tradition. Our ancient craft of toymaking has flourished through the centuries. Great skill and imagination went into the creation of toys to delight children. Delightful games have been fashioned from the simplest of materials. Numerous Indian games like Kabaddi, Kho-kho, Pakad Dao, Gilli-danda, Langadi and Tillu (to name a few), further testify to the vitality and longevity of this tradition.

The concept of a formal playground is a nineteenth century phenomenon. When most people lived in small communities, where there were large open areas, there was little need for formal playgrounds.

1.1. Play in villages

In village life even today, the child's world of play is varied and plentiful. With wide open spaces, trees, ponds, animals, birds, and many places to hide and explore, the environment is a wonderful playground. Children can play freely, for the parents need not worry about traffic and the host of dangers a city child confronts. For a village child, a formal playground is not a necessity. However, the nersery and school playgrounds in the village can be valuable for their instructional content. The playground and play equipment can excite children's curiosity and imagination about the world beyond the village. Learning, through appropriate play equipmen, is a pleasurable activity. In our cities, the situation is entirely different.

1.2. Play in cities

A large percentage of our urban children live in cramped and squalid living quarters, with no space to play. No wonder then our children have taken to playing on the streets, on roof-tops, and amidst swirling traffic, regardless of the dangers. Our society has done little to let children play in safety. In China, certain roads are sealed off to traffic for a few hours each day allowing children to play. However, playing on the streets is not an ideal solution to the problem. Especially for young children, the streets can only enhance their understanding of the world around them in a very limited sense.

The crowded nature of our cities and the lack of open spaces make the need for playgrounds — that is open spaces specifically set apart for children's recreational activities — not just desirable but a dire necessity.

In the West there has been a move towards incorporating play structures and facilities in places where children are likely to spend time — at bus-stops, shopping centres, office buildings, cinemas and railway stations. Instead of weary children following their parents on their routine chores, the child is able to use the time creatively if some structure that

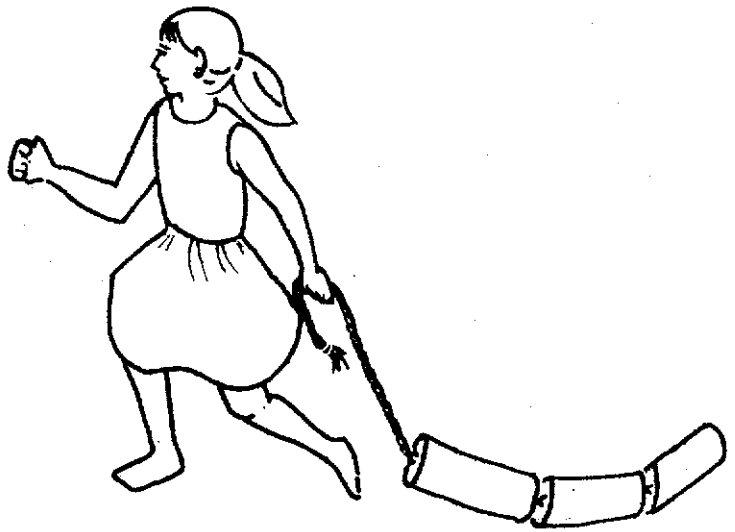
facilitates play is provided. Such structures, if provided by municipalities or business houses, even on a commercial basis would be a valuable contribution to our cities.

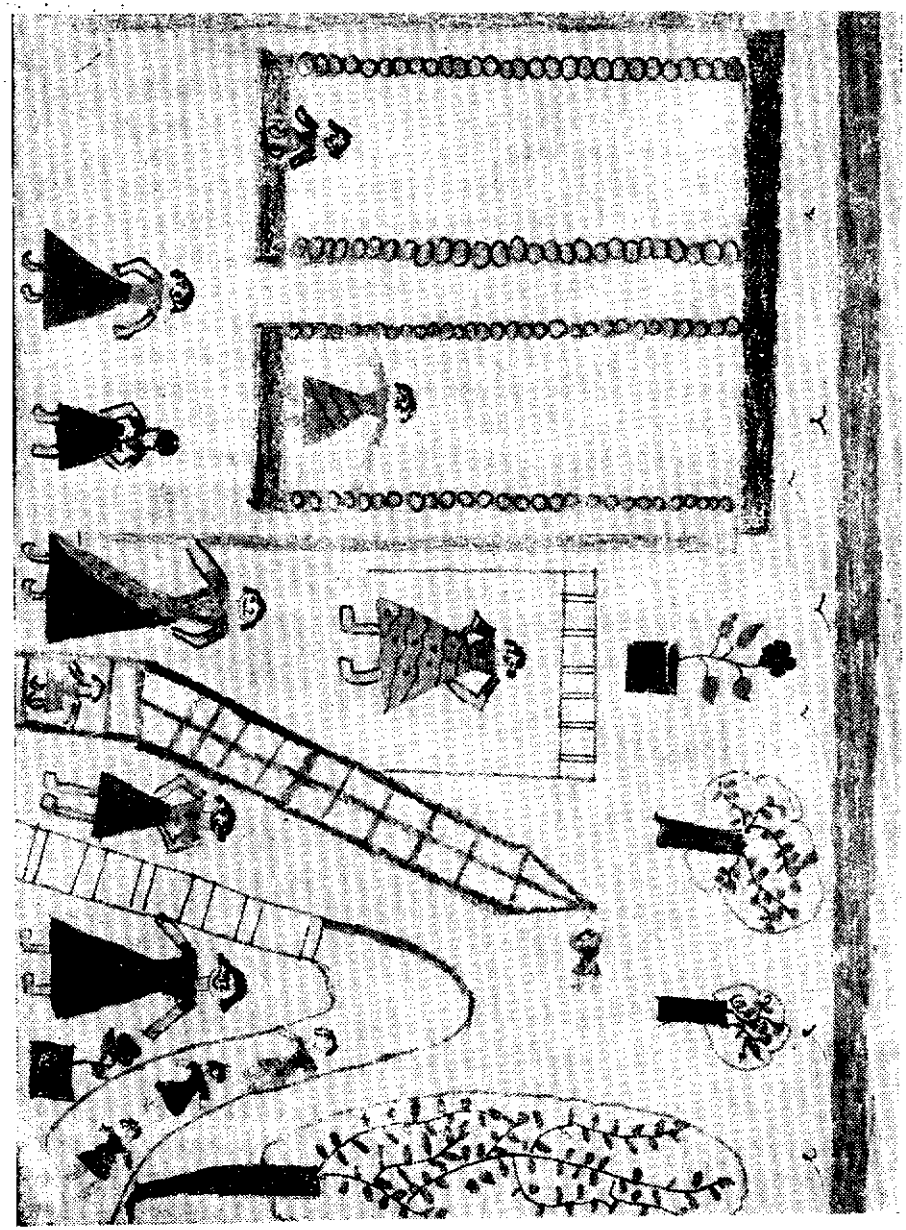
1.3 State of playgrounds in India

In India there is still little formal thinking on the subject. Of late, planners, concerned bodies like the Indian Council for Child Welfare, Balbhavans and Balkanjibaris, and various other government agencies have formally recognized the need for children's recreational facilities. Guidelines and recommendations on the number of playgrounds that should exist in a city have been specified. Our cities do not remotely meet these sandards. For ultimately it is the municipalities and like local bodies that allocate space for different uses. It is also the municipality's responsibility to construct and maintain playgrounds. Playground administration and construction typically falls under the jurisdiction of the Department of Gardens. Little thought is given to the construction and design of playgrounds. The municipal budget reflects the concerns of a city. In Ahmedabad for example, only 1.1% of the budget for recreation is spent on playgrounds.

Most school playgrounds do not differ significiantly from municipal playgrounds. The standard equipment in all our playgrounds are swings, slides and sea-saws adopted from the West, with an occasional animal form or object to enliven the dull structures. Though school playgrounds are better maintained, they do not exploit the great learning potential that a good playground can offer. Rarely is the playground perceived as a rich resource that can be a source of continuous learning and fun for children.

Even where reasonably good playgrounds exist they are very poorly maintained. Voluntary groups from the locality could undertake to maintain them, when the municipality cannot provide this service satisfactorily. Older children too are ideally suited to carry out this service. They could be organized through schools or extra-curricular clubs. These groups could also act as playground volunteers, spending time at the ground to enrich the play of younger children. Till we realize the importance of play, and understand the needs of a child at various stages of its development, our playgrounds will remain as they are — dull, badly maintained and unimaginative. This monograph draws on ideas of children, teachers, designers, nature enthusiasts, architects, parents and others interested in improving a child's play environment. Using these insights and experiences, we have made an attempt to understand a child's needs, and to provide ideas and designs to make playgrounds which are continuous





Children (10 — 12 years old) on playgrounds:

(from entries in a drawing and essay competition held by VIKSAT in Ahmedabad in 1983).

"I shall try to made my playground grassy, as the green colour of the grass is very pleasing ..... It refreshes the eyes as well as the mind".

"I shall make my playground smooth, so we can run fast in it ..... its land will be levelled and it will not have puddles."

"I shall divide my playground into different parts, so that all players can play what they like ..... small children are interested in games like Kabaddi, Kho-kho and 'mountain and the fire'. I shall make a corner for them so that they may not be disappointed."

"My playground will be surrounded by tall, shady trees ..... A place surrounded by beautiful natural scenery would be where I would like to make my playground."

"At my playground children would scream with joy, 'How big and beautiful our playground is!".

"I would provide volunteers to maintain the playground."

"A pond, a fountain, different species of animals and birds, statues of great people and other things of interest, I would love to provide on my playground."

"Man only plays when he is human in the full sense of the word, and he is only completely human when he is playing."

— Friedrich Schiller

In order to create an appropriate play environment for children one must understand nature and value of play. At one time, play was considered to be little more than an expression of excess energy and good spirits. Children's play activities were not considered important. Now we recognize that play is not only a very serious business for children, but is a motivating force for learning. In the U. K., Margaret Thatcher has appointed a Minister for Play. A Swedish Play Council was appointed in 1971. Its main tasks are to advocate the importance of play and to ensure that play facilities are widely available.

Play enables the child to master his/her own body, exercise intelligence, and is a significant factor in the process of socialization. Today the importance of childhood experiences in the development of adult personality has been acknowledged. Play is a major component of that experience. The years two to five are very critical in a child's education. Research has shown that 50% of the intelligence of a seventeen-year-old is likely to be acquired by the time he or she is five!

In play, the process, not be product is most rewarding, whereas work and the adult worker are concerned with production, play is almost an end in itself. The play is concerned with the achievement of goals or the mastering of skills, though the child is not always conscious of this aspect of play. By mastering different play processes a child develops self-esteem and confidence.

Unfettered by reality, play incorporates elements of the extraordinary. Children can transform the most ordinary of materials into fanciful objects.

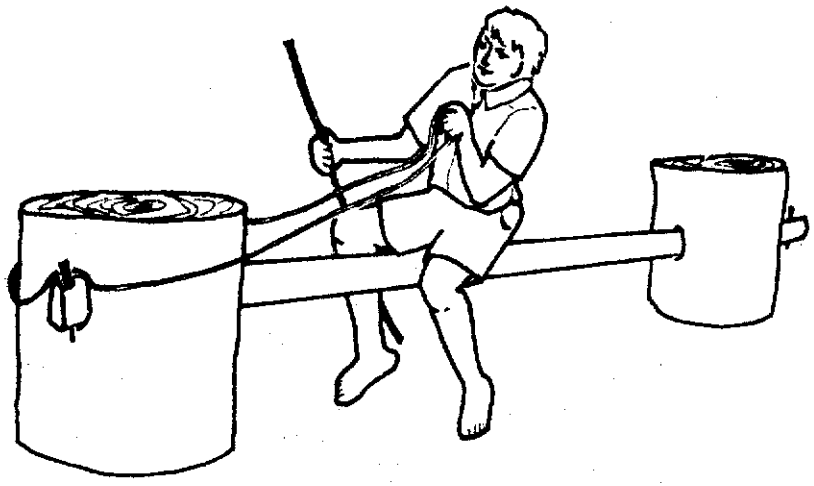
Play, one of the most spontaneous of activities, is always undertaken voluntarily. A child can always choose whether to play or not. A child should also be able to choose whether to play alone, with an intimate group or a large group.

Another very important aspect of play is that through play a child likes to assert some form of control over his surroundings. This feeling is enhanced through play-equipment which allows a child to set in motion an event. By simply moving or rearranging objects, a child is asserting his capacity to control.

Play enables a child to learn about the world. By letting fantasy over-ride reality and logic, a child learns how to cope with and resolve conflicting emotions. Play for a child is wholly experimental. This experimental aspect of play can only be realized if the play equipment is flexible, i.e. if the equipment can be used in a variety of ways.

Older children, i.e. children above ten years old are most interested in play which allows them to interact with their peers. More often than not they like playing team games, most of which require a minimum amount of equipment.

Through team play, a child learns how to curb his will voluntarily in the interest of others, to accept orders, to adhere to group decisions, to give to take, and to share.



A THEORETICAL FRAMEWORK

A good playground should aid a child's development. Its structures and lay-out should develop a child's **intelligence,** enhance his **physical abilities,** and reinforce **cognitive concepts.** Before one can develop equipment that can do this, it is essential to understand what comprises these abilities.

3.1 Intelligence :

Piaget perceived intelligence to be a special form of **adaptation.** Adaptation is a continuous process by which an individual creatively interacts with the environment. The individual acts, perceives his effect on the environment, and modifies his behaviour to more complex forms to cope better with the environment. This is a life-long process. Piaget introduces the notion of two complementary process — **assimilation** and **accommodation,** through which man organizes his experiences. Assimilation is the mastering of familiar or new skills by repetition or practice. **Accommodation** is when the individual modifies his behaviour to better respond and cope with variations in the environment.

3.2 Psychomotor development :

The play-area must also develop a child's **physical abilities.** The primary contribution a playground can make to the physical education of children is in the development and refinement of movement skills, or psychomotor abilities, the most basic being the development of stability, locomotion and gross motor abilities.

1. **"Stability"** abilities are enhanced by exercises that develop patterns of motion that enable children to maintain points of origin in their movement. Stability exercises involve such stationary movements as bending, stretching, twisting and turning, and include activities wherein importance is placed on the maintenance of equilibrium.
2. **"Locomotion"** involves projecting the body into external space by altering its location in either a vertical or a horizontal plane. Such activities as **running, jumping** and **skipping** are locomotor in nature.
3. **"Gross motor manipulation"** involves imparting force to objects such as **throwing, striking** or **volleying,** and receiving force from objects as in **catching** and **trapping.**

A good playground should develop movement skills and movement patterns for children of different age-groups.

3.3 Cognitive development :

A playground should also stimulate a child's cognitive abilities :

Spatial awareness can be developed through movement activities that involve relationships between self and others, objects and self, objects and others etc.

Directional awareness can be developed through activities stressing left and right, top and bottom, up and down, front and back, in and out.

Perceptual abilities can be advanced through a variety of perpetual motor experiences like visual, factual and auditory cues.

Wherever possible, through psychomotor development, cognitive and creative abilities can be simultaneously advanced.

3.4 Experience of the western countries :

In the West, over the last thirty years, there has been considerable conceptual advances in the designing of playgrounds. Modern and popular playgrounds in the West are very different from traditional playgrounds and inspire us to think of playgrounds more creatively. "Junk playgrounds" or "adventure playgrounds" have been very successful. They provide a mass of "safe" objects for children to play with as they like. The objects include old tyres, "junked" bodies of cars, aeroplanes, and other vehicles (treated so as to render them harmless, i. e.

rough edges smoothened etc.), broken equipment, building bricks, pieces of wood, rope etc. all of which are fascinating to children, affording hours of play. Children tinker amidst heaps of stuff, playing with whatever absorbs their fancy. These playgrounds also have some open spaces for children to run freely, trees to climb and swing from, and large boards on which children can draw. Though this type of playground may seem untidy and less attractive to adults, they have proved to be absorbing and exciting to children of different age-groups. They have proven to be rich resource centres of which children do not tire quickly.

Good playgrounds provide children with objects that **stimulate the imagination.** Children can create objects of their fancy from very simple forms. A designer must remember that a particular shape may delight the children for a while, but they may soon tire of it. An object that is not too well-defined has many more possibilities and can be used in a variety of different situations. If an object is not too insistent in its meaning, the child can make it whatever he pleases.

In order to allow the child to assert an **element of control in play** the playground should provide opportunities for interactive play. Play is interactive when the child by some action of his/hers, sets in motion an event. This feeling of having caused an event to occur can be attained by rearranging or moving objects. Though swings and see-saws are moveable, their movement is predictable and fixed within rigid bounds. Objects which allow for unpredictable movement, or which can be rearranged, or related closely to the actions of the children using them, are most interesting to children. Moving under, around or through objects also gives the child a feeling of control in play.

To allow the child to choose the type of play he/she wants to be involved in, is also extremely important. A child should have the chance to decide whether to play alone, with an intimate group, or with a large group. Each of these options implies a distinct kind of space – small sheltered areas, more ample spaces and open spaces. Furnishing for play for older and younger children must facilitate "togetherness". Thus a well-designed playground should provide pleasant sitting and gathering spaces. For through play, opportunities to develop acceptable forms of social and emotional behaviour are developed.

A playground should provide for a variety of activities. One simple way in which this can be done is by providing a variety of surfaces. For, different games and activities require different surfaces -- a smooth surface for running or for rolling objects, a sandy surface for jumping. Other possible materials that could be used to create varied surfaces are : brick, mortar, pebbles, grit, long-blade grass and clay tiles.

These surfaces will increase the texture in the playground. Rich textures develop the tactile senses of young children. Older children can use the textured surfaces for a variety of art-related activities.

The walls in a playground, if plastered and then coated with black paint, would be an excellent surface for children to make chalk drawings, play games (i. e. noughts and crosses) etc. To provide a rich play environment, both parents and children should be consulted and their needs taken into account. Whenever possible, parents and children should be involved in the design and still better the construction of playgrounds. Of course it is the child who should be catered to primarily, but parents who accompany their younger children spend several hours in a playground so their needs also should be taken into consideration. Sitting places need to be provided for them. Older children will also appreciate this facility for they too need a place to sit, chat and relax with their friends. Water facilities should wherever possible be provided.

Sitting or playing in a playground will be uncomfortable during the major part of the year, unless there is plenty of shade. Without shade, the playground will only be functional early in the morning, and for a few hours in the evening.

There are numerous such details that go to make a playground good, exciting, and effective. We have attempted to include as many as we can in the following checklist.

3.5 Designer's checklist :

Here are a series of questions one should ask before freezing the design of a playground :

1) Is the equipment in the playground safe for the children to play on/with ?
2) Is the equipment appropriate for the developmental needs of children of different ages ?
3) Does the playground provide for a variety of activities ?
4) Is it challenging to the children using it ? For example, if the playground is to be used by children of different ages, does it provide facilities for all of them ?
5) Are there opportunities for interactive play with some of the equipment, allowing the child to assert a sense of control in play ?
6) Can the child choose whether to play alone or with a group ? Are appropriate spaces provided for him/her to exercise choice in this matter ?
7) Are there facilities for creative, imaginative and adventure play ?
8) Does the play equipment provided have an easy operation system ? If not, broad clues should be provided so that the child will know how to operate it ?
9) Are the various structures reasonably spaced so that each can be used optimally ?
10) Is the equipment easy to maintain ? Have provisions been made for maintenance ?
11) Will the equipment provided be of lasting interest ? That is, can the equipment provided be used in a variety of ways ?
12) Is the equipment sturdy ?
13) Is there enough shade in the playground ?
14) Have provisions been made for drinking water ?

"Round and round the mulberry bush. . . . ."

Trees are an important component in a playground. They provide shade, will afford children hours of play and climbing fun, and they will make the playground aesthetically more pleasing. Having trees in a playground will also nurture a child's love for nature. VIKSAT held a drawing and essay competition on "The Playground of my dream" in which over a hundred children participated. Almost all the children expressed a desire to have many trees in their ideal playground.

Trees for a playground should be chosen according to the space available. Though trees are a necessity they should not clutter up space. Also, it would be wise to plant a combination of trees — i.e. some for shade, some for climbing and some for decorative purposes.

We are listing a few common trees that would be suitable for playgrounds. We have also provided a little information on each to make it easier to choose the trees you would like to plant.

S. No.	Trees	Shade	Climbing	Fruits	Flowers
1.	**Neem** Azadirachta indica	☐	☐		
2.	**Khijado** **Prosopis** spicigera	☐	☐	☐	
3.	**Imli** Tamarindus indica	☐	☐	☐	
4.	**Chiku** Manikara achras	☐	☐	☐	
5.	**Badam** Terminalia catappa	☐		☐	
6.	**Rain tree** Samanea saman	☐			☐
7.	**Gulmohr** Poincinana regia	☐			☐
8.	**Amaltas** Cassia fistula				☐
9.	**Champa** Plumeria acutifolia	☐			☐
10.	**Banyan** Ficus bengalensis	☐	☐	☐	
11.	**Jamun** **Eugenia** jambolana	☐		☐	

5. Playgrounds for different need groups

"Play is scope for action"

Anonymous

Playgrounds must be adapted to suit the needs of the children who will be using them the most. Thus a nursery playground will differ from a junior or high school playground. Junior and high school students, for example, are most interested in physical activities and team games. For them, therefore, equipment for team games and provision of adequate space for play is of primary importance.

There are other types of playgrounds too, which are more specific in focus, like playgrounds for the handicapped and science playgrounds where scientific concepts are taught through play. Other types of playgrounds include adventure playgrounds, with animals, water play areas. At an adventure playground, a child has complete freedom and scope to create his/her own play environment. Elements of these various playgrounds can be incorporated into ordinary playgrounds to make the playground more varied.

A school playground for handicapped children will have very particular play equipment to cater to the needs of its children and their specific handicaps. However, handicapped children should also be encouraged to play in ordinary playgrounds. Mentally and physically handicapped children need the space, informality and freedom to run around, make a noise, and express themselves more than other children. They will use the play equipment provided in a manner in which they feel comfortable.

We have focussed on, and provided some designs and information on nursery, primary, and municipal playgrounds. Each of these playgrounds serves a different set of functions and they each face a particular set of advantages and constraints which must be taken into account in designing them. We have tried to make the designer conscious of these factors.

Know you what it is to be a child?
It is to believe in love, to believe in belief,
It is to turn pumpkins into coaches
and mice into horses, lowness into loftiness,
Nothing into everything."

Shelley

Little children in order to develop and learn, are completely dependent on first hand sensory experiences : to feel, to handle, to listen, to watch, etc. This is how learning begins. Concepts of high, low, heavy, light, wide, narrow, smooth, rough, are formed through play. A child, in order to develop these concepts needs to look under, over and at eye level. A child's intellectual growth is encouraged by a stimulating environment in which he/she is led to observe, to experiment, to question. A child's social development is promoted through play with other young children. Through role playing a child learns who he/she is, and who others are. Therefore, a good nursery playground is extremely essential for a child's development.

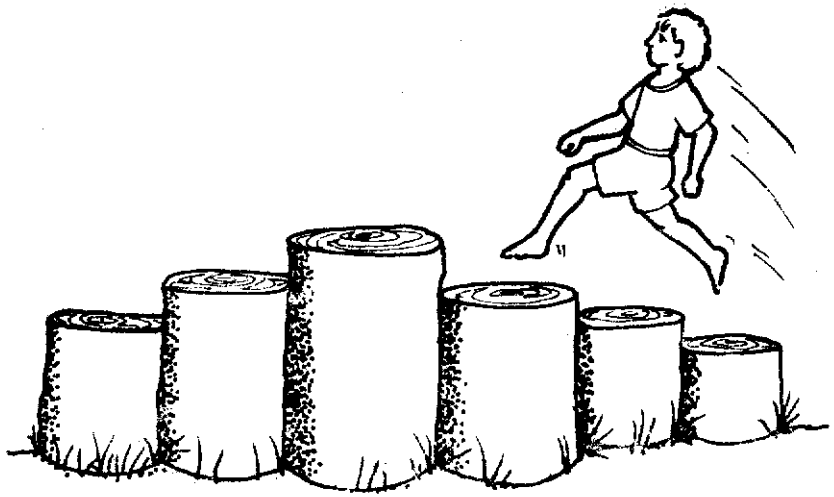
The following chart shows a young child's developed and developing skills and the activities most appropriate at different stages.

Age Group	FACILITIES 2 TO 5 YEARS				ACTIVITIES 2 TO 5 YEARS	
	Developed		Developing			
	Physical	Mental	Physical	Mental	Physical	Mental
2-3 Years	Rolling	Visual perception	Foot articulation	Perception of direction	- Handing	- Exposure different sensory experience
	Crawling	Body awareness	Climbing up and down		- Catching	* Sound
	Sitting		Balancing	Perception of space	- Jumping	* Vision
	Standing		Jumping		- Skipping	
	Walking		Eye-hand Co-ordination.		- Walking on a line	* Touch
3-5 Years	Running	Perception of direction	Body awareness	Know his own right and left hand	- Throwing	* Smell
	Climbing up and down		Bowel Control		- Climbing	- Developing Understanding of adult world
	Balancing and jumping	Perception of space	Sladder control	Developing the concept of wholeness	- Scribbling	- Perception of direction
	Eye hand Co-ordination				- Block building	
	Foot articulation				- Throwing in a definite direction	- Understanding of weights, sizes and measures.
					- Hopping	- Representation of images
					- Balancing - Awareness of muscular contraction and realization	

When designing a nursery playground it would be useful to keep in mind some of the points below :

Whenever possible, a child should be allowed an illusion of privacy in play. In this way a child's free play may be expanded. Children need freedom and choice in play. The equipment provided should reflect the child's need to develop independently. Little children like to be self-sufficient and revel in newly found skills. Some form of "messy play" should be provided for this kind of activity is bound up with all facets of development in younger children. A child's emotional needs are particularly satisfied through this type of play.

Children of nursery age need space to run freely — to dig, climb, potter — all these activities give intense pleasure and are necessary for growth. A sand-pit and a small area for digging will provide hours of fun for little children.

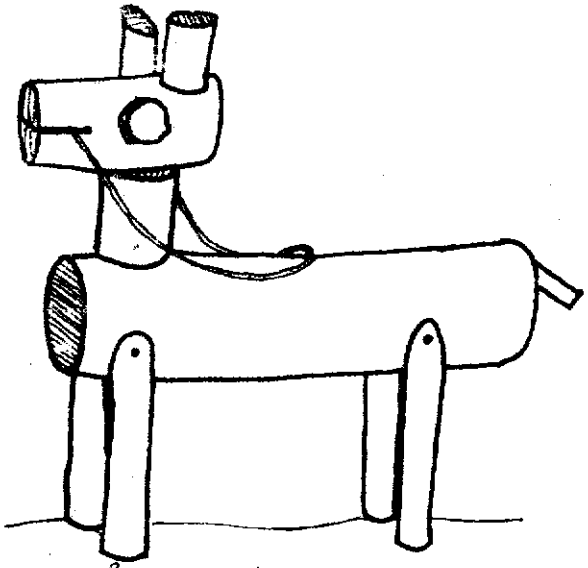


Where there is space, a physical play area should be set aside which has equipment which allows children to climb, balance, jump and swing — for this is necessary for muscle development and for the development of confidence.

Again, where space exists, some part of the playground should be left wild with shrubs that attract insects and birds. A

nursery would be much richer if it had a few pet animals quinea pigs, birds, tortoises etc. They could be encouraged to feed, clean and care for them. Low feeding stations for birds would also be ideal for nursery playgrounds.

Pathways are very exciting to small children. They could lead to some special object or place. They could be paved in a variety of ways. The playground should also provide some scope for fantasy play.



horse of raw wood

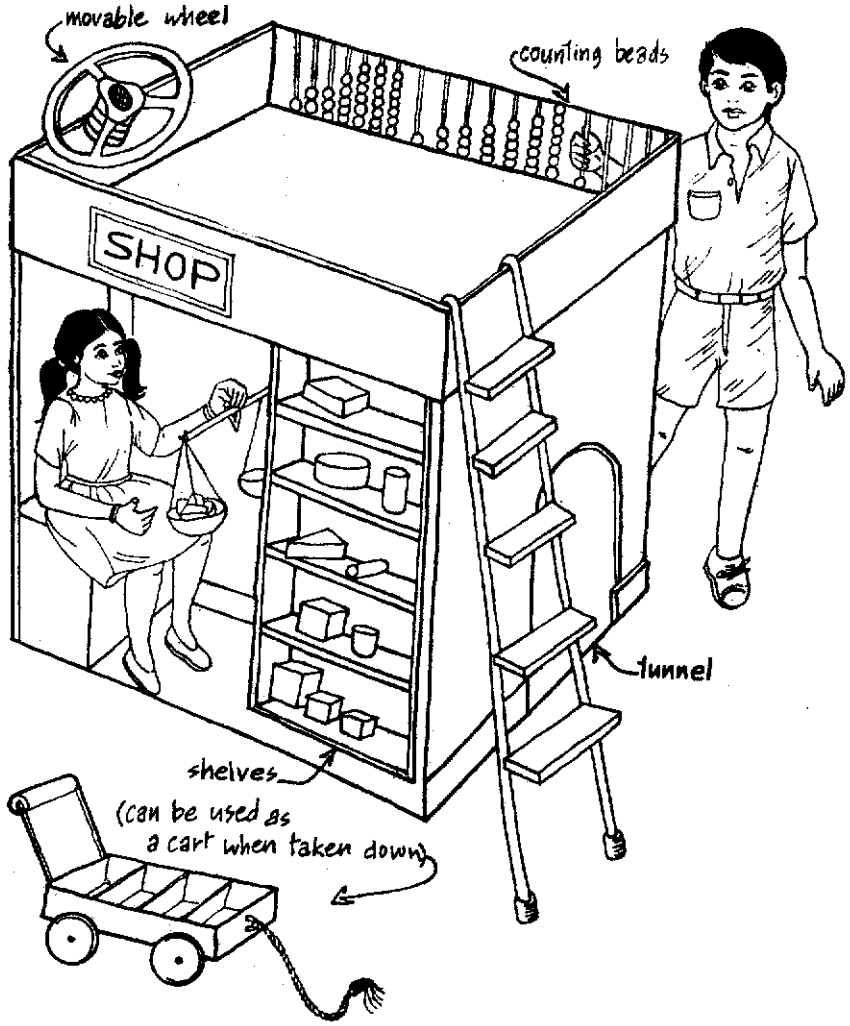
It is also necessary to provide facilities for the child to relax when he/she does not wish to be actively involved in play. Small seats or stumps of wood or wooden logs in a sheltered area would allow for this.

Most of the nursery schools in our cities which can afford to spend some money on play-equipment are run privately.

Municipal nursery schools, and anganvadis run on extremely meagre budgets). Often nurseries are organized by individuals in their homes, so there is often a problem of space. Taking these factors into account, we have designed a set of equipment which uses space creatively, and are low cost. The equipment can all be made by a carpenter once the basic idea is given. We have also given a few ideas on how to exploit all existing spaces.

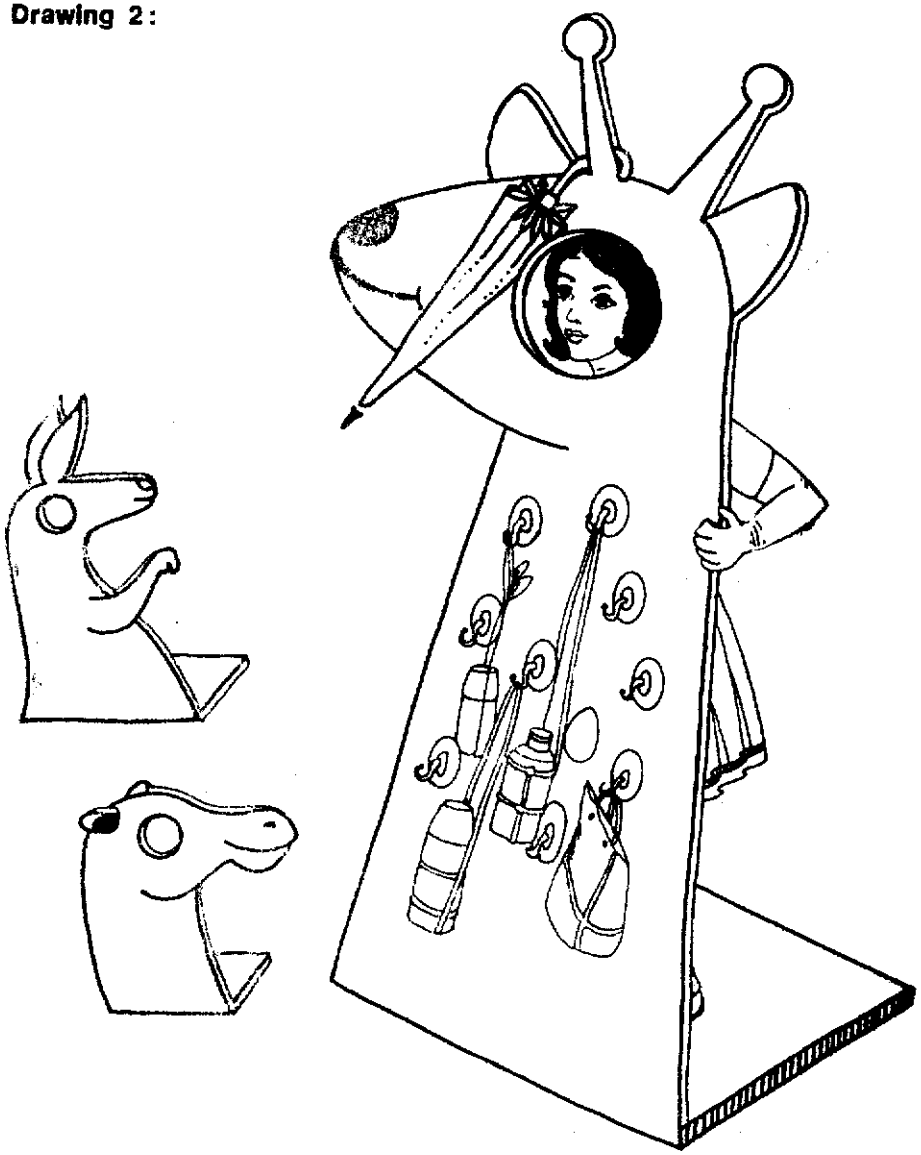
Drawing 1:

This simple wooden cube, about 3 feet high can serve a variety of functions. It can be a climber, the top rails can have wooden counting beads of all colour to keep the



children on the top busy. Another rail can have a movable wheel which will allow for fantasy or adventure play. The space beneath the tap can become whatever a child likes- a doll's house or a shop. A little seat to sit on, and shelves with a backing, which can be easily hung, are all that is needed. When the shelves are taken down, they can become a little cart — only wheels will have to be put on. Two sides of cube can be closed in, with an opening on each side so a child can crawl into a tunnel.

Drawing 2:

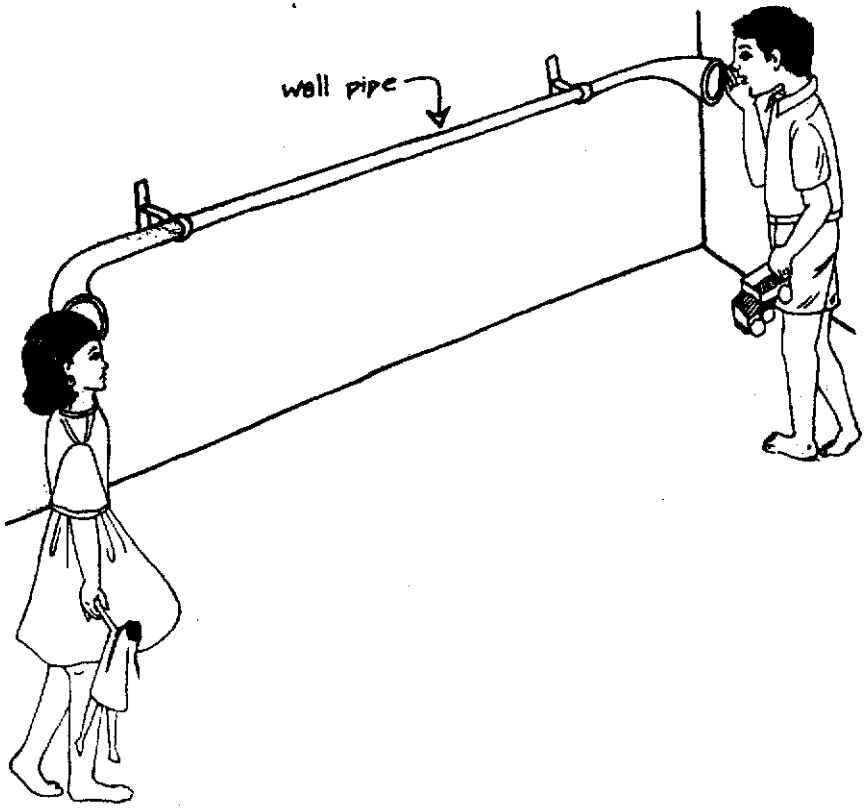


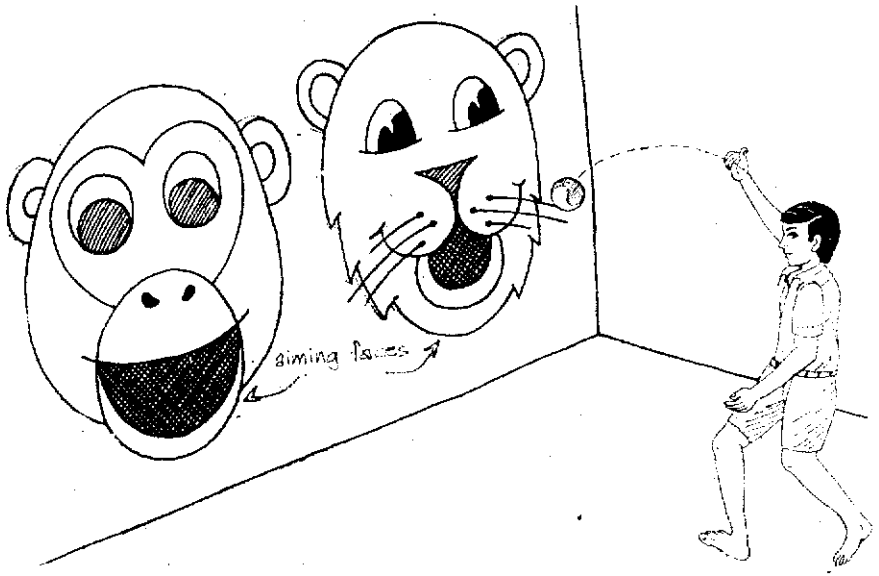
Drawing 2:

These stands can be made of wood. They are decorative and will allow the children to indulge in fantasy play. They could have hooks fixed on to them, so children can hang their coats and casks on them. These could be used indoors or outdoors.

Drawing 3 :

The wall pipes (a) the aiming faces (b) and the elephant (c) are all interesting to children, are decorative, and ideal space savers, Each of them allows for some action. These could



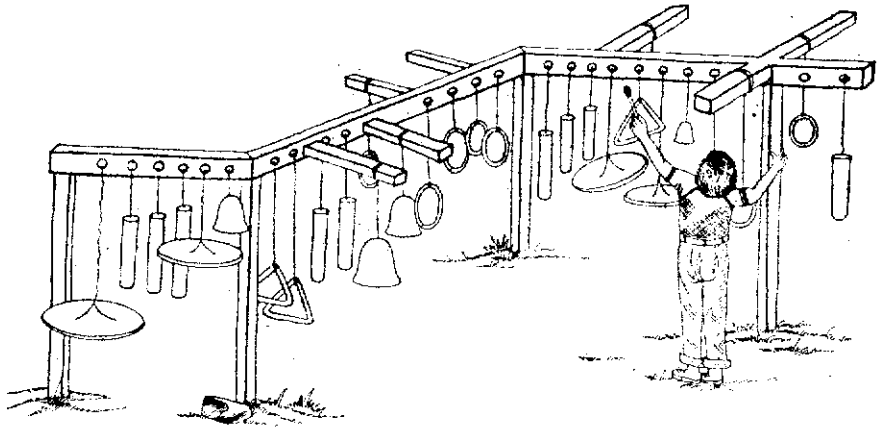


all be made of hard board and then painted colourfully. Can be used inside or outside.

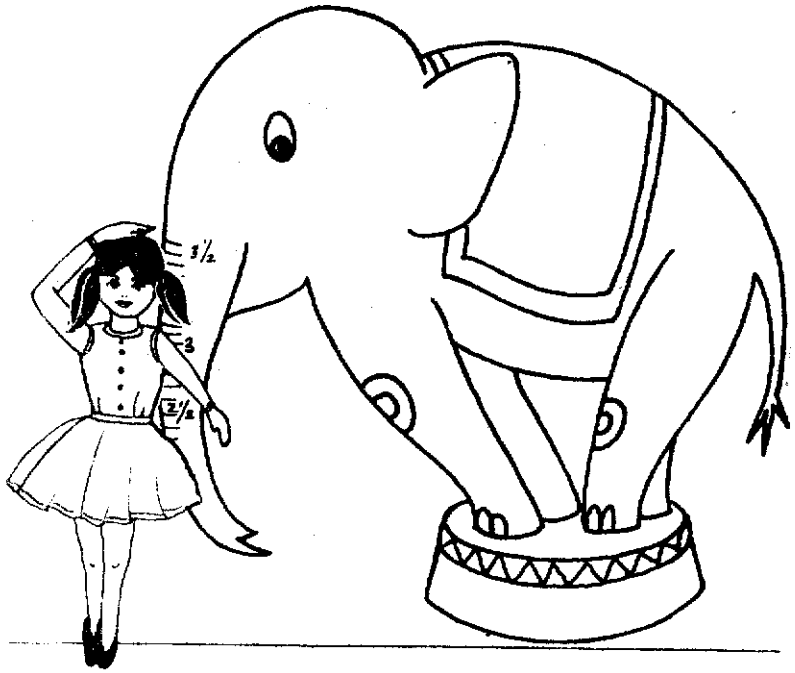
Drawing 4:

This music maker takes only a little space and can provide hours of entertainment.

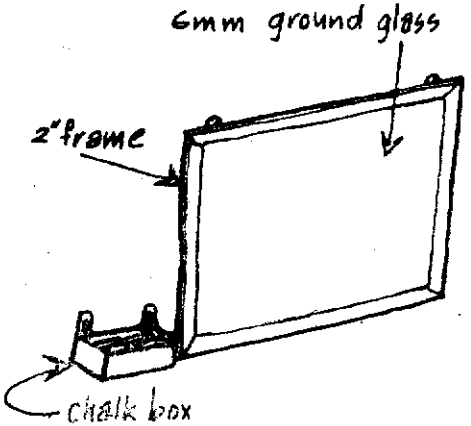
The above are just a few ideas on play equipment for a nursery. Some of the primary school equipment can be used for the nursery school when space permits. Black boards should be provided wherever possible at reachable levels to



Drawing 4:

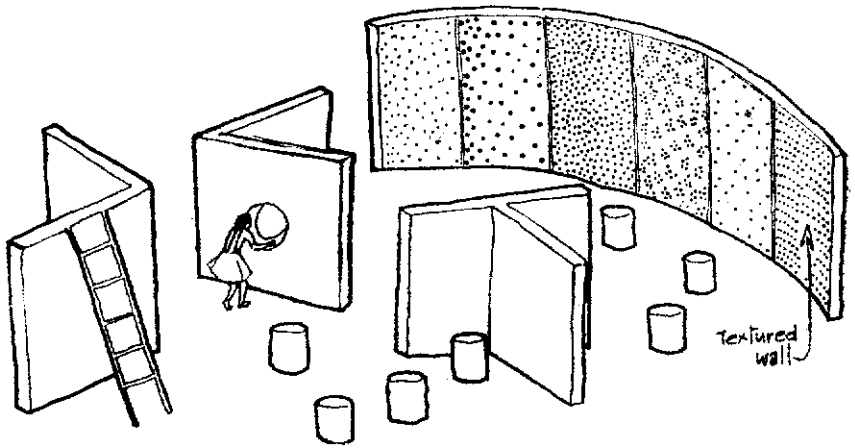


allow children to give form to their creativity. Here is a simple method to make a black-board.



Take a suitable size of 6 mm thick ground glass (available in any good sized glass dealer in a town). Paint on its smoother side synthetic enamel paint (green, black or blue or any dark colour you like). frame it with minimum 2" wide wooden frame. Put a small stand or box to hold the chalk.

7. Primary School Playground



"I hear, but I forge

I see and I remember

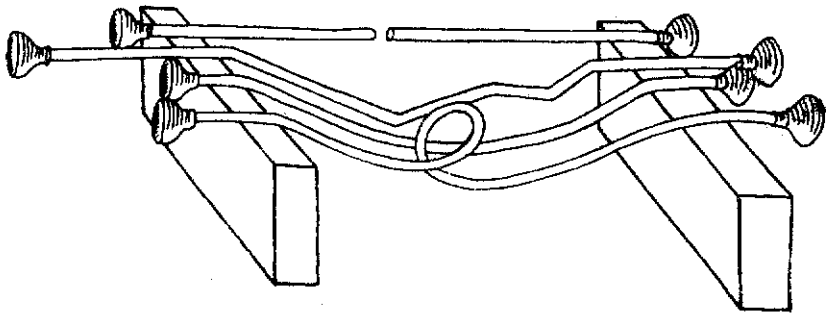
I do, and I understand". Chinese Proverb.

A primary school playground (for age group 5 to 11 years) must provide physical and intellectual activities. It must give children scope for social play, and for individual activity. To cater to the child's increasing need to control its environment, interesting forms should be included which can be used in a variety of ways.

We have designed a set of playground equipment for a primary school, and have suggested materials that can be used. Each piece of equipment complements the others and serves several functions. In primary schools teachers can supervise play, and act as catalysts for learning. This factor has been exploited to introduce learning through play. Also, we have incorporated a water-play area for children.

Drawing 5:

These low walls provide opportunity for games like hide — and — seek, quiet and group sitting places, climbing, peeping and jumping activities. The textured wall is a "learning wall'. It could have many textured surfaces from which or any other learning/fun material. The teacher could devise a variety of ways in which to use the textures and materials creatively. Children could be involved in the texturing of the wall. While the plaster is still wet, texture can be given with leaves, shells, twigs, coins, pebbles, rope, wire-mesh, coconut shells etc. They could either be imprinted or stuck onto the wall. Parts of the wall could also be painted by the children.

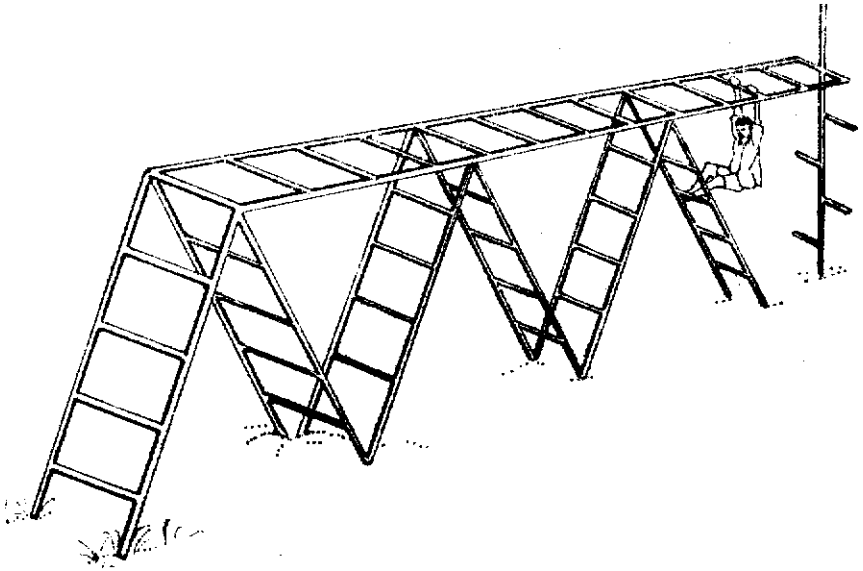


Drawing 6:

These message pipes are primarily a fun activity. The varied sizes of pipes and the different material they are made from produce different sounds. Children could play all kind of "pass the message" games here. The pipes could be made from galvanized iron, plastic tubing, tin or bamboo. Synthetic or PVC rubber pipes can also be used. The rubber pipes can be twisted. Some of the pipes can be blocked, others can have holes in them (Courtesy : Abhay Kothari).

Drawing 7:

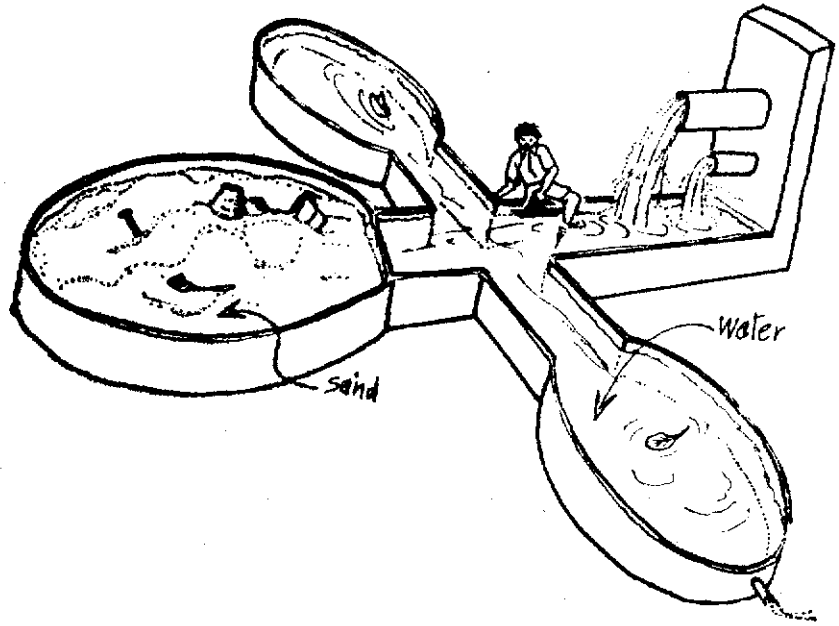
There are a number of different ways in which the climb could be undertaken on these climbing ladders. There are also facilities for swinging from the bars. This item will provide physical exercise, very necessary for children of this age. If the ladders are made broader, to accommodate a few children at a time, they could be used for races. The ladders could be made from metal, wood or treated bamboo. If the ladders are made of metal, this item must be placed in a shady area.

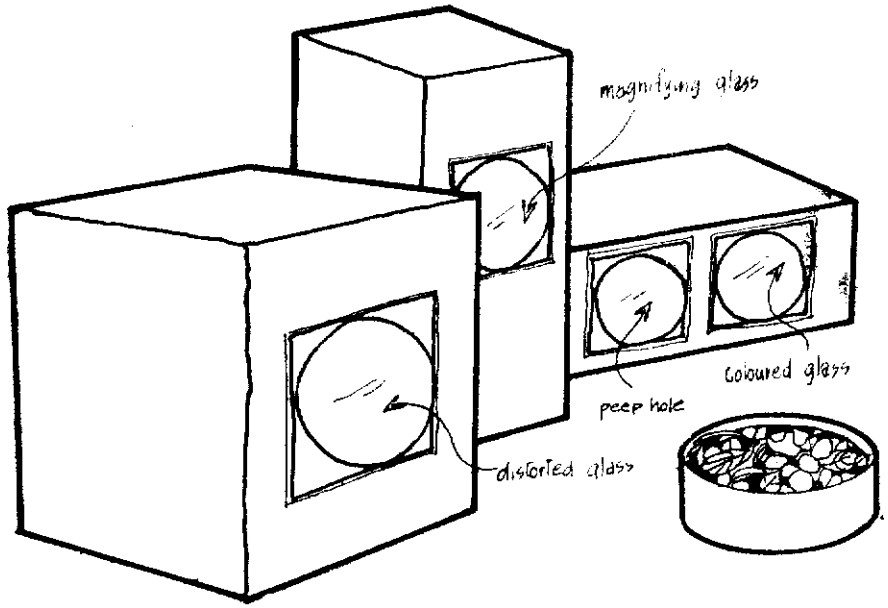


In this water play area composed of 3 pits, two with water and one with sand to let children play with the sand and water to create forms. The channel allows children to float boats, and other items they may make from it. They could also use one of the smaller pools for splashing, and other fun water games they may invent. The water can be drained out and and used for the school garden.

Drawing 9 :

These Watch — Look — Holes can also serve as a sitting and jumping area. However, the windows, made of coloured glass, magnifying glass, distorted glass (depending on the budget) can provide hours of fun. The peep-holes can also have kaleidoscopes, prisms and colour filters built into them. Close by should be a barrel of miscellaneous items, leaves, twigs, dead insects, grass, stones etc. collected by the teacher and children. These objects could be placed in the window through opening at the back of the cement blocks. The children could look at all these objects through the various media. Thus the playground would go a long way towards satisfying children's curiosity.





Balancing see — saws which could be used for fun as to learn about balance and weights, tree — house and a trail path would also be extremely suitable equipment to include in a primary school playground. It would also be good to have some bird-feeding stations, and wherever possible few pet animals in small sheds. The walls of the playground can be painted black to serve as large outdoor blackboards which children can use for drawing, and for a variety of games.

8. Municipal Playgrounds

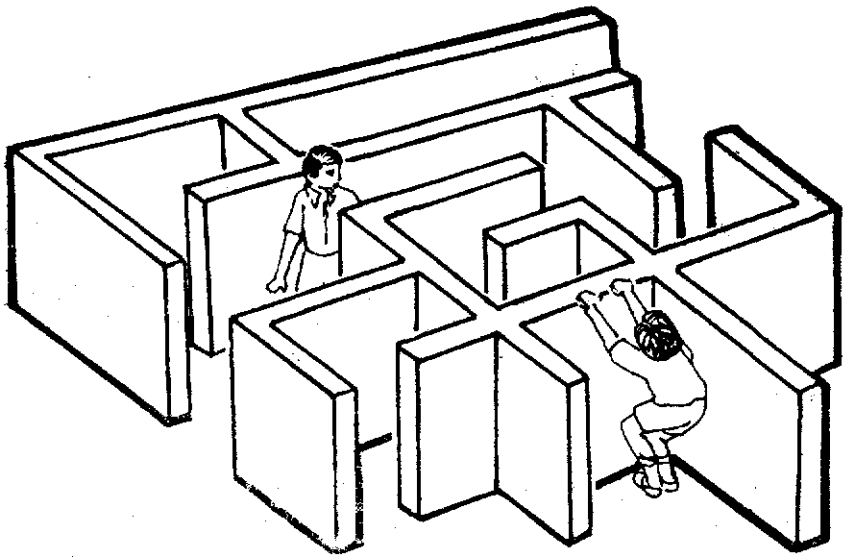
"The child shall have full opportunity for play and recreation, which shall be directed to the same purposes as education." UN Declaration.

A municipal playground has to provide sturdy equipment for a variety of ages. This equipment should lend itself to be used in a variety of ways.

Individual and team play facilities have to be incorporated in the space available to cater to the needs of older children The special constraints faced by a common municipal playground are that there are usually no opportunities for supervision of play and maintenance is not usually satisfactory. Keeping, these factors in view, as far as possible, there should be plenty of space for running and playing games. This calls for a smooth running surfaces. The lay-out of equipment should leave the playground uncluttered.

Drawing 10:

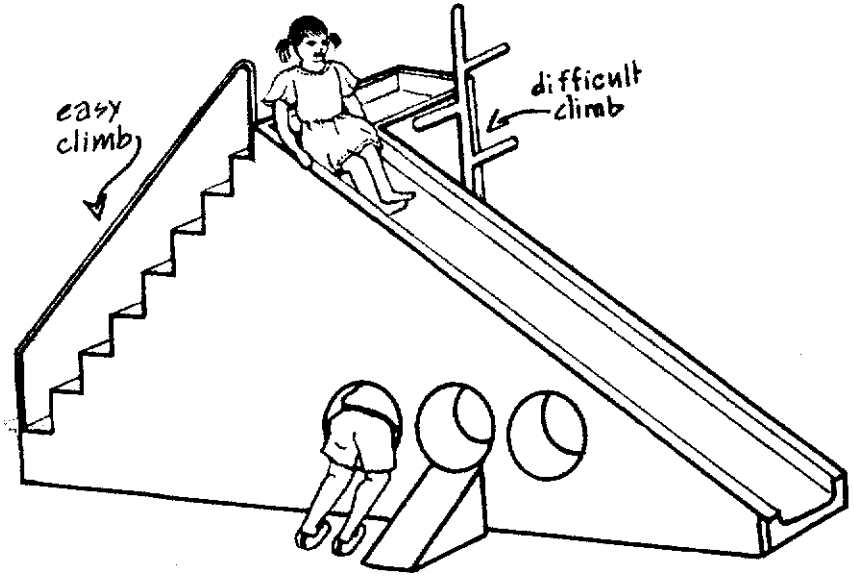
The maze could be of low concrete by or brick. Older children could use the maze ridge for jumping and walking around. The maze is an excellent place for hiding games. If the



municipal playground adjouns park which is well taken care of, then the maze could also be made from hedges. This would be attractive as well as good for hiding games etc.

Drawing 11 :

The slide we have designed is sturdy. It incorporates 2 climbs : an easy one for smaller children and a more difficult approach for older children. The base will have peeping and climbing holes and little slopes for sitting, and for younger children to play on.

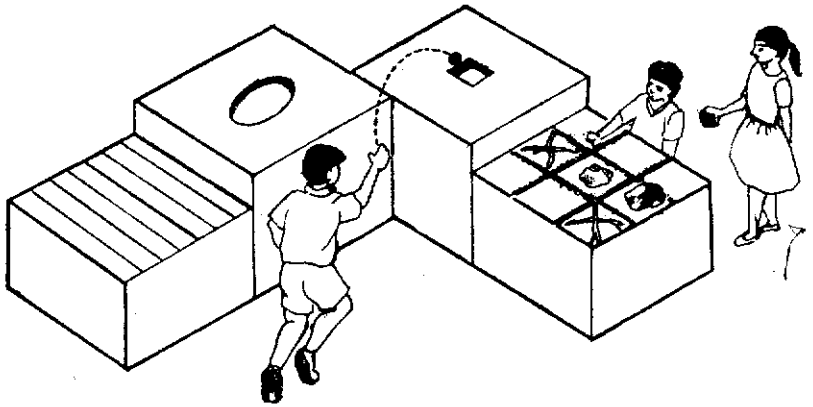


Drawing 12 :

These low cement blocks can be used for sitting, or as picnic tables, and for jumping/hopping from one to another. The blocks will have squates and grooves drawn or carved into them which can be used to invent various aiming games for example, throwing sticks and stones into slots, or pins into a bull's eye where there are grooved a series of concentric circles.

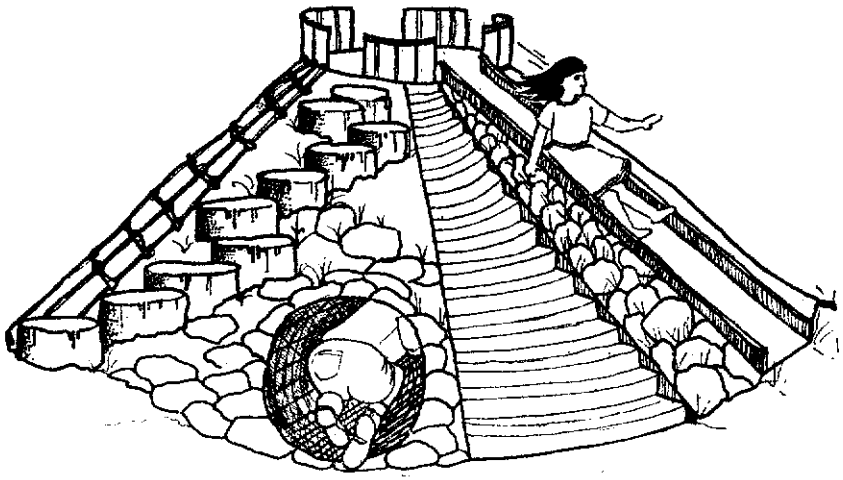
Drawing 13 :

This mound has several "paths" to reach the top — some difficult and some easy (for smaller children to climb up).



Children can invent a variety of games to run up/race to the top. The mound will also have two "tunnels" made from large tubes which run diagonally through the structure. Children will be able to crawl in, hide and look through. At the top will be a little platform on which a few children at a time can stand. This could also be used as a "den" or for other imaginative play.

The municipal playground also has to have some facilities for very small children. A sandpit and low swings with guards would be appropriate.



9. Materials and costs

Building play facilities for children need not be an expensive proposition as the few estimates below will show. Wherever possible, indigenous materials should be used ... In costing the equipment we have used regular building material (brick, plaster and metal) for most of the items. It must be remembered that these are only approximations based on prices in Ahmedabad, 1983. In the descriptions of each item we have included some ideas on alternative material that can be used. The costs are likely to be lower if locally available materials are substituted for bricks, plaster and metal.

Primary school playground :

Wall groupings :

4 walls of plastered bricks, each 5 feet high x 5 feet longs 1 learning wall, plastered bricks, 12 feet long x 5 feet high. Total Cost : **Rs. 5,500/-.**

When plaster is wet, texture can be given with leaves, shells, twigs, wire mesh etc.

Message pipe :

4 metal pipes, each 10 feet long, would cost Rs. 250-each. 2 support walls of plastered bricks 3 feet high x 5 feet long would cost Rs. 100/- each.

Total Cost : **Rs. 1,200/-.**

Climbing ladders :

Six metal ladders, 8 feet long x 6 feet high, will cost Rs. 800/- each.

Horizontal metal pole would cost Rs. 200/-.

Concrete founnation would cost Rs. 500/-

Ladder and step on the side would cost Rs. 1,000/-.

Total Cost : **Rs. 6,500/-.**

Water-play area :

3 pools made of plastered bricks, with a running length of 40 feet (mid channel 12 feet long), with low walls 2 feet high, would cost Rs. 3,000/-.

Metal gates, tap, pipes (excluding the pipe that would lead to the garden), and sand : Rs. 250/-.

Total Cost : **Rs. 3,250/-.**

The water-pipe should be connected to a water tank. The cost of the drain which will be used for the garden will depend on the distance the drain runs.

Watch ..... hole blocks :

3 plastered blocks, 3 feet x 2 feet x 4 feet, would cost Rs. 1,500/- 10 mirrors and colored glass pieces 6" x 6" each would cost Rs. 250/-.

Cost of barrel or pit : (—?)

Total Cost : **Rs. 1,900/-.**

Municipal playground equipment :

A maze made of plaster, with a running length of 90 feet, with walls 2 feet high would cost Rs. 7,200/-.

Earth-mound :

An earth mound with a base diametre of 10 feet, 6 feet high would cost Rs. 600/-.

The 3 metal pipes running like tunnels through the mound which have a diametre of 1½ feet would cost Rs. 500/-. each. The mound would cost Rs. 1,500/- to be pitched. Rs. 500/- is provided for steps, metal bars etc., to climb up the mound. The dent at the top will not add any cost.

Total Cost : **Rs. 4,100/-**